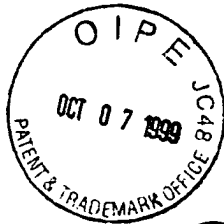


5,603,248



The United States of America



The Commissioner of Patents and Trademarks

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

Bence Lehman

Commissioner of Patents and Trademarks

Danah Morton

Attest



US005603248A

United States Patent [19]**Eggert et al.**[11] **Patent Number:** **5,603,248**[45] **Date of Patent:** ***Feb. 18, 1997**[54] **MAGNETIC BIT HOLDER AND HAND TOOL
INCORPORATED SAME**[75] **Inventors:** **Daniel M. Eggert; Frank Mikic**, both
of Kenosha, Wis.[73] **Assignee:** **Snap-on Technologies, Inc.**, Crystal
Lake, Ill.[*] **Notice:** The term of this patent shall not extend
beyond the expiration date of Pat. No.
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Primary Examiner—D. S. Meislin**Attorney, Agent, or Firm**—Emrich & Dithmar[21] **Appl. No.:** **593,396**[22] **Filed:** **Jan. 29, 1996****Related U.S. Application Data**[62] **Division of Ser. No. 335,992, Nov. 8, 1994.**[51] **Int. Cl.⁶** **B25B 13/02**[52] **U.S. Cl.** **81/438; 81/125; 81/13**[58] **Field of Search** **81/125, 13, 121.1,
81/438, 439, 180.1**[56] **References Cited****U.S. PATENT DOCUMENTS**

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[57] **ABSTRACT**

A hand tool has an elongated shank with a handle at one end and a bit holder at the other end, the bit holder including a cylindrical body having a distal end surface and an axis, the body having an axial bore formed in the end surface of non-circular transverse cross section and terminating at an inner end surface. A neodymium permanent magnet is freely received in the bore and retained against the inner end surface by a thin circular retainer, formed of metal or plastic, which is interference-fitted in the bore. Both flat, disk-like and concave, bowl-shaped retainers are disclosed. A shock-absorbing cushion may be disposed between the magnet and the inner end surface of the bore. A bit formed of magnetizable material is mateably received in a socket portion of the bore and retained in place by the magnet. The portion of the bore receiving the magnet may have a different cross section from the socket portion. The magnet may be disposed in an encapsulation which interference fits in the bore.

16 Claims, 1 Drawing Sheet